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31 October 1967

MATERIALS HANDLING SYSTEMS

Background

A. Objectives: 1. Information and Material Handling System

IMHS - October 1965

2. Automatic Materials Transport Study August 1966

3. Imagery Exploitation Analysis Objectives

Chip System Analysis Project - August 1966

4. Material Handling Study - November 1966

5. Material Handling Study - December 1966 -

Combined D.O. (Imagery Use-chips, storage and
transport, collateral)

B. RFP #RD-10-67 for (A-5) above sent out 13 Jan 67 to 16 contractors.

Responds from 7. All proposals thoroughly evaluated by PSD/ICFLB,
CSD, IPD, and TDS by means of tabulation and narrative write-ups.

C. Request for Approval submitted the middle of April 1967 for 25X1

from FY 1967 funds with the selected contractor being 25X1

Memorandum to Logistics dated 5 May 1967 postponing 25X1

MHS indefinitely with follow-up to contractors dated 17 May 1967.

D. Preliminary in-house efforts:

1. February 1965- Visit to ACIC on IDHS System

Visit to SAC on planned system (PACER)

and Minicard.

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2. 1965-1967 - Two members of TSD on CODIB Task Team
#8 afforded opportunity to visit numerous installations, contractors, and invitees regarding film handling, S&R and related aspects of MH.
3. 1965-1966 - Numerous discussions with PSD & CSD to determine requirements, volumes, use rates, etc.
4. October 1966 - TDS & CSD personnel visited several West Coast companies to see various handling systems
[redacted] 25X1
5. 1966 - Investigations by TSD into Video tape Systems and closed circuit TV Systems for applicable methods of ~~an~~ in-house transmission of materials.
6. June 1967-Present - Further fact gathering discussions with operational components to determine in-house steps, preliminary equipment surveys, evaluation of submitted alternative proposals by two contractors. ([redacted]) 25X1

Review of Material Handling Situation

- A. Three major areas of large volumes of materials presently in use
in use in [redacted] are: The PSD Film Vault, CSD Collateral Material, 25X1
and the Photo Analyst's Files (PI Chips).
- B. A survey of the roll film handling problem in the PSD film vault revealed the following:

1. USE RATE - June 1967 -

- a. 50,000 cans of roll film currently on hand.
- b. 13521 cans of film were requested for use (in house and loans) *(during month of June)*
- c. Received (incoming) 186 shipments
Shipped (outgoing) 1157 shipments } *Average 4 cans/box*
Total Weight 132,844#

total 343

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Total 3309 boxes

1375 New missions received during June. (SE Asia)

(Average 1000 per month)

2. MAN HOURS

(Information Control & Film Library Branch)

a. Twenty persons (PSD/ICFLB) handling above material=

3200 man hours/month.

Average time per request (in-house) - 7 minutes times

13521 requests = 1577 man hours. This excludes loans

to other organizations which requires packaging, courier

times and document control procedures in addition.

3 ILLEGIB
 1577
 4777
 (5000 mt)

3. PREDICTIONS

- a. PSD/ICFLB is holding too much material. They anticipate a decrease through a revision of NPIC Notice 70-1-2 (Disposition of NPIC Photography) dated 2 December 1965, which establishes the disposition and purging system in current use. This however, will not decrease the number of requests serviced nor the incoming-outgoing shipments, but simply reduce the shelf space required for storage.

4. CONCLUSIONS-RECOMMENDATIONS

(PSD/ICFLB)

Their primary problem appears to be one of recording and controlling the individual cans of film and not the physical handling of same. A computer-tied control console which will permit an operator to query for the location of specific cans, which will furnish a purge list, based on date of acquisition and use, due dates of material on loan, and these types of current time consuming operations are the problems to be overcome.

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[] through their Integrated Information System, has
looked at this problem and has made valid recommendations
for solving the recording and control of film cans.

25X1

"Informal Records"
(Page 8 - Task L []) Two sets of records are in current
film control. (a) mission Film Record (MFR) - record of
inventory, receipt of film, distribution, destruction, and
entry of film into library. (b) Control Card File -
establishes accountability and responsibility for loaned
film. Each backed up by file of receipts, destruction
certificates, etc. (Page 10 - [] (Task A(1)g))

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[] is recommending automation of instructions for the flow
of ~~First Phase~~ film from the library to the PI teams on
basis of number of priority targets. (Page 14 and 15) ~~First~~
They are also recommending ~~the~~ automation of target prediction

25X1

and arrangement, assignment of targets to teams and workload
Additionally, Records Mgt Staff is investigating motorized shelves for storage to alleviate the space problem.
(man-hour) predictions. It is felt that this area, on the

basis of requiring digital conversion of the data rather
than physical movement of material, should be excluded
immediate
from the Material Handling Program.

C. A survey of the Collateral Support Division revealed three major
problem areas applicable to Materials. Handling.

*{Transport & volume of materials
Communication
Minimization}*

1. Transport and Volume of Materials - Papers, film, books,
target briefs, maps, etc. from file to user to file.

a. July 1967, Soviet Bloc Branch Only - 66,000 pages were
pulled, screened, and made into briefs. They must be
hand-sorted, packaged by WAC area, and physically trans-
ported from 5th to 3rd floor. (PAG)

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3b Typical KH-4 mission requires processing/dissemination

of some 15,000 pages of material prior to or during PAG

first and second mission exploitation (DAK & MI). *These are derived from telemetry thru ADP Programs & consist of Tgt Predictions, Tgt Summaries, Control Lists, etc. 10,000 pages of this distributed to the 2,3,4 floors.*

a (i) Copies to components other than CSD and PAG must be

separately controlled (TID, IAS, SPAD, DIA, etc.)

3c.

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4d. CSD/SBB maintains two major files of hard copy materials. These are the Target Briefs and the CSD Installations. The "Headers," which are used for identification and control purposes, are compatible for both files.

4 (i) Target Brief File - This is essentially a history of the individual NPIC target. It contains a record of PI readouts, selected COMINT, graphics and collateral information, COMOR requirements, and a record of photo coverage of the target. On 1 August 1967 this file contained approximately 22,500 targets. The 28,250 pages of this file requires 9 linear feet of file space. During FY 1967 CSD reduced this file size some 30% through use of a new format employing two columns of print per page (No reduction of info content - simply space reduction). When this file becomes ^{a part of the} the National Data Base as envisioned by JIIRG, it is expected to increase to approximately 32,000 targets, ^{or an anticipated growth of at} ~~we therefore anticipate a growth of at~~ least 25 % during FY 1968.

SSB also maintains a file of deleted NPIC targets numbering almost 6,000. These are hand filed in WAC/NPIC order and

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are used for target verification purposes.

The monthly requirements of SBB alone require approximately 99,000 pages of Target Brief Materials from IPD. This consists of TWO COPIES of the Target Brief File (28,250 pages each), and some 84 header listings totalling 43,000 pages. One set of briefs is bound. The other is obtained in loose or "burst" copy, bound by hand in CSD, and used for revision purposes. Files are used by Research Analysts and Photo Interpreters on a daily basis.

Additionally CSD is responsible for obtaining and disseminating some 66,000 pages of target brief materials for each mission in support of the OAK Supplement and MI activities of PAG. SBB clerks bind (by hand) a complete set of briefs for all WAC areas which ~~TID informs us~~ will be covered by the mission. When there are multiple passes over congested target areas it is necessary to bind and disseminate a second and/or third copy. These are separated into three "sets", placed on carts and wheeled to the PAG area, third floor. During these operations SBB eliminates some 45% of the 66,000 pages of material. Support of 21 missions during 1966 required printout of more than 1,500,000 pages of briefs for this activity.

2(2) CSD Installations file - (Back-up to Target Brief File)

Each folder is established on the basis of collateral or codeword reports. This includes such diverse sources

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as the attache and clandestine services reports, foreign press and publications, non-system photography, and evaluated studies. PI reports based on satellite photography MAY BE INCORPORATED into these files.

SBB analysts, in 20 months, have ^{built up} ~~provided~~ some 107 linear feet of Installations files. Expansion is at a rate of approximately 4 linear feet per month. This is the result of analysis of some 250 Intelligence Reports (IR's) each month. An average IR consists of 3 pages of text and 10 photo enclosures.

The file is especially useful for detailed PI reporting. Each NPIC target for which an Installation file exists carries a special target designator.

Thirty six header listings totalling 22,600 pages are printed monthly for this file. They are used primarily in CSD and in PAG. There are three sequences; Alphabetic, WAC/NPIC and by Coordinates.

During 1966 CSD/SBB handled over 270,000 pages of the header listings necessary for identification and control of this file.

Major input consists of selected materials obtained by processing some 3,000 intelligence reports containing about 9,000 pages of text and 30,000 photographs. The file continues to expand at a steady rate of approximately

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48 linear feet per year. Production is accomplished through continuing review of the files and destruction of outdated or inferior quality materials.

IMPACT ON CSD/SBB

25X1

- (1) More selective target printout
- (2) Less updating of history files (now monthly)
- (3) Smaller working file printout
- (4) Will include predictions and relieve repetition.

3 (3) Additionally, both the Soviet Bloc Branch and the Non Bloc Branch receive a total of approximately 600 Intelligence Reports per month. The IR's containing 10-15 photos each, are screened, and analyzed for new information and processed into subject files (247 linear feet of files).

4) The Reference Branch is quite varied in its functions. Nevertheless, an inordinate amount of material is handled i.e. in May 1967 the Information Section circulated 40,428 documents, in 1966 they received and processed over 90,000 documents, and cataloged nearly 3,000 books and pamphlets. The Photo Research Section researched and procured nearly 450,000 aerial photos, ground photos, and film reels in addition to servicing 3,000 requests from building components. The Reports Analysis Section in 1966 reproduced and handled 55,453 photomosaics and nearly 7000 minicard reproductions. Additionally minicard and all-source listings produced,

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amounted to 2710 as the result of 1100 requests. The Map Section in 1966 received 173,492 maps, issued 98,457 and purged 16,363 during 1966. They also made up 5,835 target packets and issued 25,500 packets.

- a. (TASK L) proposing ^{ES} to consolidate control of 25X1
Center Initial Distribution Cards and the Division and Branch control records into machine readable records, employing methods (protection) which are being developed for the automated handling of substantive data. Single record control would permit:
- (1) Immediate location
 - (2) Auto. generation of inventory lists
 - (3) Centralized destruction
 - (4) Elimination of duplicate files

1(5) ~~The~~ CSD ~~Division~~ anticipates an increase of approximately 1/3 over the present holdings and work load as the result of the ~~JIRG~~ ^{JIRG} ~~IRIC~~ recommendations. Active targets will increase from 22,000 to 32,000 with a subsequent increase of intelligence information in support of the additional targets.

2. Communication - Internal

- a. Lack of adequate internal communications results in considerable delay in information transfer. (one gray phone in PAG)
- b. Teletype hook-up as interim measure (Secure??)
- c. study recommending Remote Console and/or Remote Writer. 25X1

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d. CCTV and/or Video Tape systems

3. Miniaturization

- a. Space limitation becoming critical *as evidenced by the file footage above.*
- b. Minicard System is antiquated - no updating or modernization. Continual maintenance required. Complete breakdown would mean everything from current time on would be stored in hard-copy form.

D. The decision as to whether a Materials Handling solution should be solved by contract or by in-house efforts is dependent upon the type solutions desired and personnel considerations.

In the case of in-house effort, the more basic requirements can be met by installation of off-the-shelf equipment to meet ^{some} current needs such as remote display consoles and/or writers, belt transport systems, pneumatic tube systems, and the like for transport of materials. The remote console system would also probably, to a degree, solve the communication problem. Further investigation into CCTV and Video Tape systems might also be initiated in-house with possible loan or lease of equipment ^{to} try out. Miniaturization however, is not so easily solvable without an extremely thorough investigation as to the building requirements as a whole, to determine whether or not there is sufficient material to warrant a full blown system to include storage and retrieval; what systems best fit the varied materials on hand; the impact of the ☐ study on a MH program; the impact of the National Data Base; cost 25X1
 factors, ^{etc.} There are systems in existence such as ☐ 25X1
 "CARD" which is relatively inexpensive and furnished access to 70,000 pages of information per store. It is however, a converted micro-fiche system, requiring a reduction printer/processor in addition to the

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reader. Other systems such as the [] File Search wherein the storage media is 70mm roll film, a full blown Micro-fiche system such as is in use at the Defense Documentation Center, the Aperature Card system as developed by the Navy, or hybrid systems as in use by the Weather Bureau are all operational and are meeting the requirements of the job.

25X1

It appears as though the best solution is still the contract approach. TDS has no one person or group of persons sufficiently knowledgable in the varied fields concerned. On the other hand, organizations such as []

25X1

and [] have successfully performed studies, arrived at solutions, and implemented the operational hardware to satisfy the job to be done.

25X1

The original program, consisting of two phases (a) Investigation and Analysis and (b) System Implementation, was possibly too ambitious, in that we were assuming that Phase I would naturally evolve into Phase II, and that the Film Vault problem was more of a material handling nature than recording and control, as the case turns out. Additionally, in light of the present CODIB investigation on Photo Chips, and the probable implementation of a National Data Base at NPIC, it appears that R&D effort should not be initiated until more valid findings result so far as size, content, conversion, and use are forthcoming.

(Pg. 3)

Equipment investigation to date has been rather general, in that specific requirements have yet to be determined. It is however,

felt that no one system will suffice. Example: while a microfiche system *may well replace the antiquated Minicard system,* it is not the whole solution to the CSD problem areas insofar as retrieval of filed information is concerned.

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and expanded to contain hard copy, as seems inevitable,
 Additionally, if the National Data Base is established, [^]compatability
 in size, coding, and content between systems should be a firm requirement.
 To date there is no information on these parameters regarding the
 NDB.

- E.* E. One of the major parameters of the final MH Development Objectives was
 investigation into a Chip System. Both the TDS and operational com-
 ponents of NPIC have invested considerable sums into this area, anticipating,
 possibly too far in advance, the probability of nearly all future analysis
 from cut film rather than roll film. Toward this end, a printer, processor,
 comparators, stereoscopes, etc., have been developed to handle cut film.
The theory behind the original development was that cut film
[^] is easier to use than roll film, in both analysis and mensuration, and
 that every analyst would be using the best available copy. As it now
 appears, the above, while still valid, is secondary to the fact that the
 volume of acquisition material in proposed systems is so great that some
 kind of a target selection scheme will be a necessity in order to cope
 with ^{coverage} ~~coverage~~. Additionally, it has been stated that there is not
 enough silver in the National holdings to reproduce all the copies now
 being produced. This it appears, is a natural evolution into a chip
 system.